

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An article of clothing comprising a phase change material which is a blend of at least two compounds and which has a melting point of from 5 to 30°C and a melting 5 temperature range of from 1 to 5°C.
2. An article of clothing according to claim 1, wherein the phase change material has a melting point of from 5°C to 25°C.
- 10 3. An article of clothing according to claim 1 or claim 2, wherein the phase change material has a melting point of about 22°C.
4. The article of clothing according to claim 1 or claim 2, wherein the phase change material has a melting point of about 6°C.
- 15 5. An article of clothing according to claim 1, wherein the phase change material has a melting point range of from 1 to 4°C.
6. An article of clothing according to claim 1, wherein the phase change material has 20 a heat of fusion of 150 kJ/kg to 250 kJ/kg.
7. An article of clothing according to claim 1, wherein the phase change material undergoes less than 17% expansion on complete melting.
- 25 8. An article of clothing according to claim 1, wherein the phase change material is provided in discrete pouches.
9. An article of clothing according to claim 8, wherein the phase change material is 30 encapsulated by a laminate film, wherein the laminate film comprises an outer heat-sealing layer and an inner layer which is impermeable to the phase change material.

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10. An article of clothing according to claim 9, wherein the laminate is a three-layer film comprising a layer which is impermeable to the phase change material interposed between heat sealing layers.

5 11. An article of clothing according to claim 9 or claim 10, wherein the overall thickness of the laminate is from 30 to 150 μ m.

12. An article of clothing according to claim 9, wherein the laminate comprises a layer of (biaxially oriented) nylon interposed between layers of LLDPE.

10 13. An article of clothing according to claim 12, wherein the nylon layer is from 10 to 50 μ m thick and the LLDPE layers from 50 to 100 μ m thick.

15 14. An article of clothing according to claim 13, wherein the nylon layer is about 15 μ m thick and each layer of LLDPE about 51 μ m thick.

15. An article of clothing according to claim 8, wherein the phase change material is contained in a number of individual and slender pouches which enable a flexible article of clothing to be prepared.

20 16. An article of clothing according to claim 8, wherein each pouch has a heat exchange surface area to volume ratio of from 1.06 to 1.20.

25 17. An article of clothing according to claim 8, wherein the pouches are inserted into pockets within the article and sealed therein, either permanently or removably.

18. An article of clothing according to claim 8, wherein the material from which the article is made is lightweight and breathable, and shaped so that in use the pouches will be in close proximity to the wearer's skin.

19. An article of clothing according to claim 8, wherein the pouches are fitted into regions which in use are likely to come into proximity with body sites of high heat dissipation.

5 20. An article of clothing according to claim 1, in the form of a jacket or vest, wherein the phase change material is concentrated to provide a high level of cooling to the chest, back and/or shoulder areas.

10 21. An article of clothing according to claim 8, in the form of a jacket or vest, wherein the pouches are provided in a rib-like arrangement across the front and back of the jacket or vest.

22. An article of clothing according to claim 8, wherein the pouches do not extend over flex points in the article of clothing.

15 23. An article of clothing according to claim 8, comprising inner and outer shells, the inner shell being adapted to receive pouches containing the phase change material.

20 24. An article of clothing according to claim 1, further comprising one or more suitably positioned fittings that allow a thermal exchange surface of the article to be brought into close contact with the wearer's body, or parts thereof.

25 25. An article of clothing according to claim 8, comprising pouches containing different types of phase change materials depending upon the location of the pouch within the article of clothing.

26. An article of clothing according to claim 25, wherein in areas of the article corresponding to regions of the body of high heat loss, the pouch(es) contain a phase change material having a relatively high heat of fusion and wherein in areas of the article corresponding to regions of the body where heat loss is lower the pouch(es) contain a phase change material having a lower heat of fusion.

27. An article of clothing according to claim 8, further comprising one or more ice packs.

5 28. An article of clothing according to claim 1, comprising a phase change material having a melting point of about 6°C and a phase change material having a melting point of about 22°C.

10 29. Use of an article of clothing according to claim 1 for pre-event, intra-event, inter-event and/or post-event cooling of an athlete.

30. Use of an article of clothing according to claim 1 to reduce the core body temperature of an individual such that after completing a warm-up or pre-event routine without the article of clothing the core body temperature of the individual is approximately 15 the same, or even slightly lower, than that before cooling was initiated.

31. Use according to claim 30, wherein the desired overall reduction in core body temperature is achieved by using the article of clothing before, after or during application of some other method of cooling the body.

20 32. Use according to claim 31, wherein the other method of cooling the body is a cool or cold shower.

33. Use of an article of clothing according to claim 31 to provide cooling a helmet.

25 34. Use of an article of clothing according to claim 1, to provide a cooling garment to be worn under protective clothing.

30 35. Use of an article of clothing according to claim 1 in medicine where cooling of the body or a part thereof is beneficial.

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36. Use according to claim 35 for the management and/or treatment of ectodermal dysplasia, multiple sclerosis or head trauma.